

Disseminated tinea corporis caused by *Trichophyton tonsurans* in an immunocompetent patient

Yazmín Xurami Vega-Del Pilar¹, Emanuel Chew-Bonilla¹, Luis Angel Amaya-Morante², Juan Israel Silva-González³, Francisca Hernández-Hernández⁴, Patricia Manzano-Gayosso⁴, Andrea Lucía Rodríguez-Martínez¹, Christian Didier Ortega-Arévalo⁴, Alicia Lemini-López¹

¹Department of Dermatology, Hospital de Especialidades “Dr. Bernardo Sepúlveda Gutiérrez,” Centro Médico Nacional Siglo XXI, Instituto Mexicano del Seguro Social (IMSS), Mexico City, Mexico., ²Department of Pathology, Hospital de Especialidades “Dr. Bernardo Sepúlveda Gutiérrez,” Centro Médico Nacional Siglo XXI, Instituto Mexicano del Seguro Social (IMSS), Mexico City, Mexico., ³Medical Mycology Laboratory, Hospital de Especialidades “Dr. Bernardo Sepúlveda Gutiérrez,” Centro Médico Nacional Siglo XXI, Instituto Mexicano del Seguro Social (IMSS), Mexico City, Mexico., ⁴Medical Mycology Laboratory, Faculty of Medicine, Universidad Nacional Autónoma de México (UNAM), Mexico City, Mexico

Corresponding author: Alicia Lemini López, MD, PhD, E-mail: aleminil65@gmail.com

ABSTRACT

Disseminated tinea corporis is uncommon in immunocompetent patients and may mimic inflammatory or neoplastic dermatoses. A 55-year-old man with eight years of pruritic, erythematous, scaly plaques affecting the trunk and extremities was evaluated after limited response to previous treatments. Histopathology showed neutrophils in the stratum corneum, spongiosis, and a superficial perivascular lymphocytic infiltrate; periodic acid-Schiff staining revealed hyphae and spores. Direct examination showed septate hyphae, and culture identified *Trichophyton tonsurans*. Antifungal susceptibility testing demonstrated resistance to fluconazole and susceptibility to voriconazole, isavuconazole, posaconazole, terbinafine, and ciclopirox. Immunologic and hematologic studies were normal. Oral voriconazole led to progressive clinical resolution. Dermatophytosis should be considered in chronic widespread dermatoses, even without evident immunosuppression. Culture and susceptibility testing are useful in persistent or treatment-refractory cases.

Key words: Tinea, Dermatophytosis, Antifungal resistance, Voriconazole, *Trichophyton tonsurans*

INTRODUCTION

Tinea corporis is a superficial dermatophyte infection that typically presents as annular erythematous scaly plaques and usually responds to topical antifungal therapy [1-3]. However, chronic, extensive, or atypical presentations may occur after delayed diagnosis, inappropriate treatment, or corticosteroid exposure [4].

Disseminated tinea corporis is uncommon and is more frequently associated with impaired cellular

immunity [5]. Nevertheless, extensive disease may also occur in apparently immunocompetent patients, especially in longstanding infections or in the presence of fungal reservoirs such as onychomycosis [6].

Antifungal resistance among dermatophytes has become an increasing concern in chronic or treatment-refractory dermatophytosis [7,8]. We report a case of disseminated tinea corporis caused by fluconazole-resistant *Trichophyton tonsurans* in an immunocompetent adult, with clinical resolution after susceptibility-guided therapy with oral voriconazole.

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CASE REPORT

A 55-year-old man with no relevant medical history except chronic tobacco use presented with an eight-year history of pruritic erythematous scaly dermatosis. The eruption began on the hands and progressively disseminated to the trunk and the four extremities. He had received multiple topical and systemic treatments without sustained improvement.

In February 2024, he was referred to our tertiary dermatology department. Physical examination showed widespread plaques on the trunk and extremities, measuring up to 45 cm, with pale erythema, fine scale, and active borders. Reticular livedo was noted on the lower limbs. Toenail involvement included yellow discoloration and thickening consistent with onychodystrophy (Figs 1a – 1c).

Because of the chronic course, extension, and atypical morphology, the differential diagnosis included cutaneous T-cell lymphoma. Skin biopsy, direct examination, fungal culture, antifungal susceptibility testing, and immunologic evaluation were performed. Histopathology revealed neutrophils in the stratum corneum, spongiosis, and a superficial perivascular lymphocytic infiltrate. Periodic acid-Schiff staining confirmed hyphae and spores in the stratum corneum (Figs 2a and 2b).

Direct examination of skin scales and nail material with potassium hydroxide showed branching septate hyaline hyphae. Lactophenol cotton blue staining demonstrated abundant lateral and clustered pyriform microconidia compatible with *T. tonsurans* (Figs 3a – 3d). Culture

on Sabouraud agar, Borelli agar, and soil-hair medium confirmed *T. tonsurans* with characteristic morphology (Figs 4a – 4c). Antifungal susceptibility testing showed resistance to fluconazole (minimum inhibitory concentration ≥ 64 $\mu\text{g/mL}$) and susceptibility to voriconazole (minimum inhibitory concentration 0.25 $\mu\text{g/mL}$), isavuconazole, posaconazole, terbinafine, and ciclopirox (Fig. 5).

Initial treatment with fluconazole and topical miconazole produced only partial improvement. In March 2025, therapy was changed to oral voriconazole, 200 mg every 12 hours, with progressive reduction in lesions and pruritus. Immunoglobulin levels, lymphocyte subsets, and serologies for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus were normal. Hematologic evaluation excluded malignancy and eosinophilic disorders. The final diagnosis was disseminated tinea corporis caused by fluconazole-resistant *T. tonsurans* in an immunocompetent host. Complete clinical resolution was achieved with residual hyperpigmentation (Figs 6a and 6b).

DISCUSSION

Dermatophytosis is usually a localized superficial infection with characteristic annular erythematous scaly plaques that respond adequately to conventional antifungal therapy [1-4]. However, chronic and extensive presentations may occasionally occur and mimic inflammatory or lymphoproliferative dermatoses, especially after prolonged disease duration or previous inadequate treatment [9,10].



Figure 1: (a-c) Clinical photographs showing extensive erythematous plaques with fine scale and active borders; toenail onychodystrophy is also shown.

In the present case, the patient had an eight-year history of disseminated erythematous scaly plaques with atypical morphology and poor therapeutic response, initially raising suspicion for cutaneous T-cell lymphoma. Histopathology alone showed nonspecific inflammatory changes, whereas periodic acid-Schiff staining, direct

examination, and fungal culture confirmed dermatophyte infection. This highlights the importance of mycological studies in chronic widespread dermatoses, particularly when clinical findings are atypical [9].

The identification of *Trichophyton tonsurans* was another relevant finding. Although this anthropophilic dermatophyte is classically associated with tinea capitis, it may also cause extensive tinea corporis in adults [5,6,11,12].

Another important aspect of this case was antifungal resistance. Susceptibility testing demonstrated resistance to fluconazole, explaining the poor clinical response to previous treatment. Antifungal resistance among dermatophytes has become an increasing concern in chronic or treatment-refractory infections [13-15]. In our patient, susceptibility-guided treatment with oral voriconazole resulted in progressive clinical resolution, supporting the usefulness of antifungal susceptibility testing in selected refractory cases [16].

This case emphasizes that dermatophytosis should remain in the differential diagnosis of chronic extensive dermatoses, even in immunocompetent patients. Mycological studies are essential in persistent or atypical presentations.

The main limitation of this report is the absence of molecular confirmation of antifungal resistance mechanisms. However, the phenotypic susceptibility profile was clinically relevant because it correlated with the limited response to fluconazole and the subsequent improvement after treatment modification. This finding supports the practical value of culture and susceptibility testing in selected cases of chronic, extensive, or treatment-refractory dermatophytosis. In addition, the case underscores the need to reassess chronic dermatophytosis when standard therapy fails, rather than continuing repeated empirical antifungal courses.

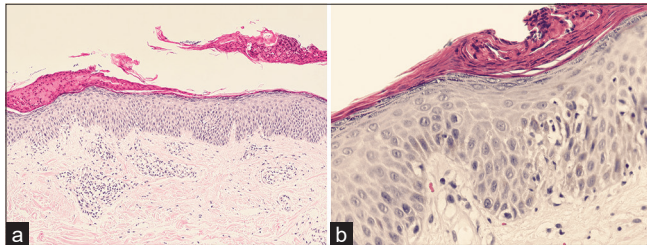


Figure 2: (a and b) Histopathology showing neutrophils in the stratum corneum, spongiosis, and a superficial perivascular infiltrate. Periodic acid-Schiff staining was positive for hyphae and spores.

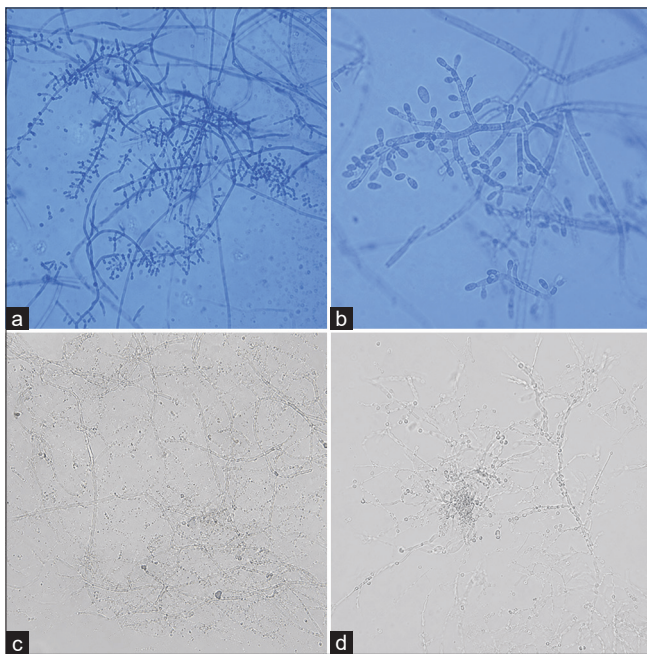


Figure 3: (a-d) Direct examination showing septate hyphae and microconidia compatible with *T. tonsurans*.

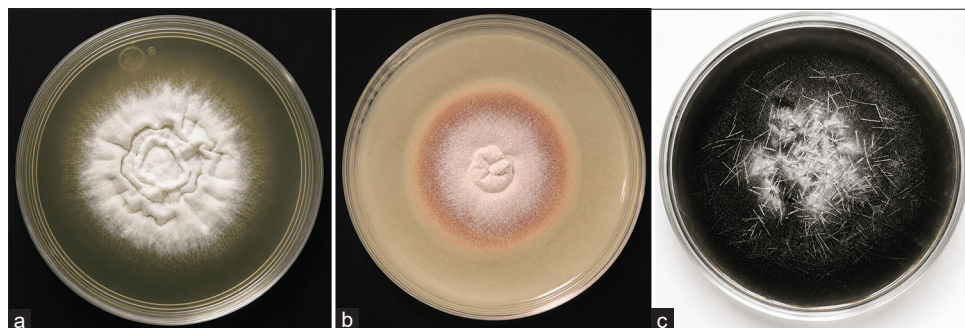


Figure 4: (a-c) Culture on Sabouraud agar, Borelli agar, and soil-hair medium showing characteristic morphology.

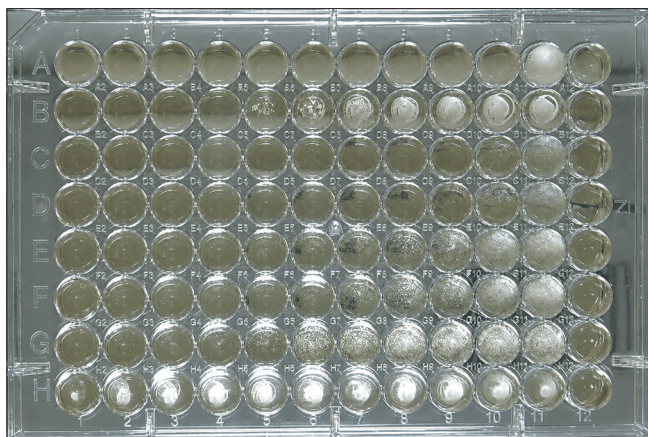


Figure 5: Antifungal susceptibility testing by microdilution. Visible growth indicated resistance to fluconazole, while absence of turbidity indicated susceptibility to voriconazole, isavuconazole, posaconazole, terbinafine, and ciclopirox.



Figure 6: (a and b) Clinical resolution with residual hyperpigmentation after voriconazole therapy.

CONCLUSION

Disseminated tinea corporis may mimic chronic inflammatory or neoplastic dermatoses, even in immunocompetent patients. In this case, histopathology, culture, and susceptibility testing confirmed fluconazole-resistant *Trichophyton tonsurans* and guided successful treatment with voriconazole. Early mycological evaluation should be considered in chronic or treatment-refractory dermatophytosis.

Informed Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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